

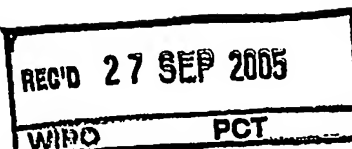
PATENT COOPERATION TREATY


PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference 2003P14806WO		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/EP2004/010252		International filing date (day/month/year) 14.09.2004		Priority date (day/month/year) 26.09.2003
International Patent Classification (IPC) or national classification and IPC H01M8/10				
Applicant PAUL SCHERRER INSTITUT et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 14.02.2005		Date of completion of this report 28.09.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer GONZALEZ-CUENCA, M Telephone No. +31 70 340-		



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/010252

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-19 as originally filed

Claims, Numbers

1-13 as originally filed

Drawings, Figures

1-2 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	3,6,9,10
	No: Claims	1,2,4,5,7,8,11-13
Inventive step (IS)	Yes: Claims	3,6,9,10
	No: Claims	1,2,4,5,7,8,11-13
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following documents:

D1 = US 5656386

D2 = US 2003/0113604

D3 = US 4605685

D4 = US 6444343

1. Novelty

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 2, 4, 5, 7, 8, 11, 12 and 13 is not new in the sense of Article 33(2) PCT.

The subject-matter of claim 1 is not new over the disclosure of document D1 because D1 discloses a method for preparing a membrane to be assembled in a membrane electrode assembly, comprising the step of swelling an ion-conducting membrane in a liquid containing at least one solvent by controlling the content of solvent in the ion-conducting membrane (see col. 8, lines 15-18). The subject-matter of claim 1 is also not novel on the basis of document D2 (see paragraph 35), document D3 (see col. 5, lines 35-50), document D4 (see col. 7, lines 27-31).

The subject-matter of dependent claim 2 is not new over the disclosure of document D1 because D1 discloses a radiation-grafted membrane (see col. 4, line 27 to col. 5, line 5).

The subject-matter of dependent claim 4 is not new over the disclosure of document D1 because D1 discloses a grafting solution which comprises a crosslinker monomer, the content of said crosslinker monomer being 10%, relative to styrene (see col. 10, lines 1-3).

The subject-matter of dependent claim 5 is not new over the disclosure of document D3 because D3 discloses a method characterised in that prior to the swelling step, the membrane is treated in a strong acid solution and then rinsed with water (see col. 7, lines

38-45).

The subject-matter of dependent claim 7 is not new over the disclosure of document D3 because D3 discloses a method comprising the steps of providing a membrane in a pre-swollen state, coating the membrane on both sides with an electrode layer to form a sandwich and hot-pressing the sandwich (see col. 5, line 35 to col. 6, line 12). The subject-matter of dependent claim 7 is also not novel on the basis of document D4 (see col. 8, lines 48-60).

The subject-matter of dependent claim 8 is not new over the disclosure of document D3 because D3 discloses a catalytic active layer disposed between the electrode layer and the membrane (see col. 5, line 66 to col. 6, line 12).

The subject-matter of dependent claim 11 is not new over the disclosure of document D3 because D3 discloses a catalytic active layer comprising ruthenium (see col. 5, line 8). The subject-matter of dependent claim 11 is also not novel on the basis of document D4 (see col. 9, line 1).

The subject-matter of dependent claim 12 is not new over the disclosure of either document D3 (see col. 5, line 35 to col. 6, line 12) or D4 (see col. 8, lines 48-60 and col. 12, lines 32-35).

The subject-matter of dependent claim 13 is not new over the disclosure of document D3 because D3 discloses a membrane having a thickness in the range of 100 m (see col. 5, line 35).

The subject-matter of claims 3, 6, 9 and 10 is new because none of the cited documents disclose all their features. Therefore they meet the requirements of Articles 33(1) and 33(2) PCT.

2. Inventive step

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 2, 4, 5, 7, 8, 11, 12 and 13 does not involve an inventive step in the sense of Article 33(3) PCT.

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(SEPARATE SHEET)**

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The combination of features of dependent claims 3, 6, 9 and 10 is neither known from, nor rendered obvious by the available prior art.

The claims 3, 6, 9 and 10 meet the requirements of Articles 33(1) and 33(3) PCT.

3. Industrial applicability

The subject-matter of claims 1-13 is industrially applicable. Therefore claims 1-13 meet the requirements of Article 33(4) PCT.

Re Item VII

Certain defects in the international application (form or content)

Rule 11.10 and 11.11 PCT

The figures should be given in separate pages, meaning separated from the description pages. Those figure pages should be numbered as well accordingly. Furthermore, the explanation to said figures should appear in the description and not on the figure pages.